

# CEU COURSE DESCRIPTION

## PRETREATMENT 202 CEU TRAINING COURSE - 24 HOURS

The Industrial Pretreatment program is a federally mandated program under the Clean Water Act, which controls the discharges of commercial and industrial facilities. The purpose of the pretreatment program is to block the introduction of pollutants, which can cause damage to equipment and interference with the wastewater treatment process, into the wastewater collection and transmission system. The program is important in preventing harm to workers, the public and the environment.

### Course Focus

The NPDES program requires that all point source discharges to waters of the U.S. (i.e., “*direct discharges*”) must be permitted. To address “*indirect discharges*” from industries to Publicly Owned Treatment Works (POTWs), the EPA, through CWA authorities, established the National Pretreatment Program as a component of the NPDES Permitting Program. The National Pretreatment Program requires industrial and commercial dischargers to treat or control pollutants in their wastewater prior to discharge to POTWs.

### Course Reference

This training manual provides documentation of EPA’s recommendations as well as federal requirements for Significant Industrial User (SIU) permit contents and structure. The manual contains many examples of sections and conditions of a permit, as well as complete sample permits and fact sheets. The goal is to furnish this information to operators in a reference manual format that they can use throughout the permitting process or as a pretreatment reference. For such individuals, the training manual provides background information on requirements of the pretreatment program/permitting and discusses the necessary legal authority required to implement an effective program.

It is recommended that all operators who are directly involved with the permit drafting and issuance processes understand the entire manual to get an overview of its contents and structure. The pretreatment/industrial waste and wastewater treatment field is quite vast and is a difficult subject to grasp.

Technical Learning College has utilized the U.S. Environmental Protection Agency (EPA), Office of Water, guidance manual **Industrial User Permitting Guidance Manual 833-R-12-001A September 2012** for course direction.

TLC will use this EPA information guidance for you to understand the mechanisms and need for developing and issuing permits (or control mechanisms) to nondomestic (Industrial) Users under the National Pretreatment Program. The purpose of this training manual is to provide continuing education to wastewater and pretreatment operators and administrative personnel who are involved in implementing an SIU permitting program in preparing effective and enforceable permits or other control mechanisms.

### **The intent of this training course, *Pretreatment 202*, is to:**

- (1) Provide a reference for anyone interested in understanding the basics of the pretreatment program requirements, *and*
- (2) Provide a roadmap to additional and more detailed guidance materials for those trying to implement specific elements of the Pretreatment Program.

This course is intended to provide an understanding of the basic concepts of the Pretreatment Program and CWA requirements and related concerns for all those involved with implementing or working within the Pretreatment Program.

### **Intended Audience**

Stormwater Inspectors, Wastewater Treatment Operators, Pretreatment and Industrial Waste Inspectors--the target audience for this course is the person interested in working in the stormwater/pretreatment field. This course was designed for the pretreatment inspector or for the wastewater treatment/wastewater collection operator who performs various pretreatment related job duties. This course is also for operators wishing to maintain CEUs for certification license, wanting to learn how to do the job safely and effectively, and/or to meet education needs for promotion. This CEU Course will review the Environmental Protection Agency's Rules and Regulation relating to Title 40 Code of Federal Regulations, Part 403, "*General Pretreatment Regulations for Existing and New Sources of Pollution*," and other applicable State and Federal laws, including but not limited to, the Clean Water Act and the Industrial Pretreatment 40 CFR. This course will cover the fundamentals and basic requirements of the Federal rule concerning the National Pretreatment Rule, POTW, wastewater sampling and reporting information.

### **Course Statement of Need**

It is essential that all pretreatment and wastewater operators learn to properly identify and deal with pass-through and interference from industrial users. It is critical that pretreatment and wastewater operators understand NPDES permitting procedures. You will learn the CWA rule concerning these pretreatment permitting and violations concerning various contaminants, proper sampling techniques and disposal methods.

**Prerequisites:** None

### **CEU Course Learning Objectives**

Knowledge obtained by this CEU Course and the approximately average times the student will spend on each subject. This includes assignment reading, glossary review, and final examination.

### **CEU Course Goals**

#### **Topic 1 - Pretreatment Overview**

Understand and describe Clean Water Act's rule concerning pretreatment and the rationale for pretreatment.

#### **Topic 2 - Pretreatment Program Development**

Understand and describe pretreatment administrative (ordinance) and engineering techniques concerning the implementation of a pretreatment program. There is a post quiz at the end of this section to review your comprehension and a final examination in the Assignment for your contact hours.

#### **Topic 3 – Identifying Industrial Users**

Understand and describe pretreatment industrial and commercial users.

**Topic 4 – Permit Application**

Understand and describe Clean Water Act's rule concerning pretreatment permitting of various industrial users and the importance of proper documentation.

**Topic 5 – Permitting Considerations**

Understand and describe Clean Water Act's rule concerning pretreatment and the rationale for pretreatment.

**Topic 6 – Effluent Limitations**

Understand and describe Clean Water Act's rule concerning effluent limitations and prohibited discharges. The student will be able to select which pollutants to specifically regulate and how to establish permit effluent limits.

**Topic 7 – Monitoring and Reporting Requirements**

Understand and describe Clean Water Act's rule concerning pretreatment requirements of monitoring and reporting of various industrial users and the importance of proper documentation.

**Topic 8 – Pretreatment and Wastewater Sampling Section**

Understand and describe Clean Water Act's rule concerning pretreatment/local limit/special sampling requirements.

**Topic 9 – Standard and Special Conditions**

Understand and describe standard and special permit requirements. Standard and special conditions outline the general duties and responsibilities of each Industrial User.

**Topic 10 – Enforcement**

Understand and describe inspection and compliance procedures and proper documentation.

**Topic 11 – POTW Hauled and Hazardous Wastes**

Understand and describe Clean Water Act's rule concerning proper biosolids and hazardous waste disposal. There is a post quiz at the end of this section to review your comprehension and a final examination in the Assignment for your contact hours.

**Topic 12 – Confined Space Section**

Understand and describe flammable atmospheres. Differentiate between toxic, irritant, and asphyxiating atmospheres.

## Detailed CEU Course Objectives

### Topic 1 - Pretreatment Overview

**Topic 1 - Section Focus:** You will learn the basics of the pretreatment program, POTW rules, industrial/commercial classifications and inspection procedures. At the end of this section, you the student will be able to understand and describe Clean Water Act's rule concerning pretreatment and the rationale for pretreatment. There is a post quiz at the end of this section to review your comprehension and a final examination in the Assignment for your contact hours.

**Topic 1 – Scope/Background:** The Industrial Pretreatment program is a federally mandated program under the Clean Water Act, which **controls the discharges of commercial and industrial facilities**. The purpose of the pretreatment program is to block the introduction of pollutants, which can cause damage to equipment and interference with the wastewater treatment process, into the wastewater collection and transmission system. The program is important in preventing harm to workers, the public and the environment. 250 Minutes

Program Objectives	Sampling Plan
Publically Owned Treatment Works	Local Limits
Conventional Pollutants	Key Review Notes
Wastewater	Sewage Collection System
Nutrients	Sanitary Sewer Overflows
Biochemical Oxygen Demand	Proper CMOM Program
Flow Section	FOG Introduction
POTW Pretreatment Program	Controlling FOG Discharges
Prohibited Discharge Standard	Best Management Practices
Effluent Guidelines	Industrial Users
Levels of Control	Discharges to POTW
Pretreatment Roles and Responsibilities	Toxic Emissions
SIU Defined	Volatile Organic Compounds
CIU Responsibilities	Priority Pollutants

### Topic 2 - Pretreatment Program Development

**Topic 2 - Section Focus:** You will learn the basics of developing a pretreatment program: Including the administrative and engineering controls that prevents the introduction of pollutants into the POTW that will pass through the treatment works or are otherwise incompatible with treatment, prevent the introduction of pollutants that could interfere with POTW operations, including interference with the POTW's chosen sewage sludge use and disposal practices, as well as pollutants that could threaten worker health and safety

At the end of this section, you the student will be able to understand and describe pretreatment administrative (ordinance) and engineering techniques concerning the implementation of a pretreatment program. There is a post quiz at the end of this section to review your comprehension and a final examination in the Assignment for your contact hours.

**Topic 2 – Scope/Background:** The POTW's pretreatment program identifies specific discharge standards and requirements that apply to sources of nondomestic wastewater discharged to a POTW. By reducing or eliminating waste at the industries ("source reduction"), fewer toxic pollutants are discharged to and treated by the POTWs, providing benefits to both the POTWs and the industrial users. 170 Minutes

5 Million Gallons	Program Elements
General Control Mechanisms	Pretreatment Roles
Program Requirements	Businesses Subject to Pretreatment
Permit Issuement	Regulations
40 CFR 403	Categorical Standards

New Source  
CWF vs FWA  
Parshall Flumes  
Wastestream Types  
Flowmeter Check List  
Removal Credits

Total Toxic Organics  
MAHL MAIL  
Local Limits  
Case-by-Case Discharge Limits  
Local Limit Sheet  
Summary of Standards

### Topic 3 – Identifying Industrial Users

**Topic 3 - Section Focus:** You will learn the basics of identifying and locating all possible Industrial and Commercial Users, which might be subject to your POTW's Pretreatment Program and inspection procedures. At the end of this section, you the student will be able to understand and describe pretreatment industrial and commercial users. There is a post quiz at the end of this section to review your comprehension and a final examination in the Assignment for your contact hours.

**Topic 3 – Scope/Background:** The introduction of pollutants into a POTW from any non-domestic source IUs or CIUS is regulated under section 307(b), (c), or (d) of the Act. Subject to Federal categorical standards. Discharges 25,000 GPD or more of process wastewater. Contributes 5% or more of hydraulic or organic capacity of the POTW treatment plant. Has a reasonable potential for adversely affecting the POTW or for violating any standard or requirement. 150 minutes

Legal Authority

Industrial Waste Surveys

Who Needs a Permit

Permitting

Permit Application

Permit Issuance

Permit Durations

Legal Authority

Authority to Require Permit

Sewer System Evaluation

### Topic 4 – Permit Application

**Topic 4 - Section Focus:** You will learn the basics of industrial/commercial POTW permitting. At the end of this section, you the student will be able to understand and describe Clean Water Act's rule concerning pretreatment permitting of various industrial users and the importance of proper documentation. There is a post quiz at the end of this section to review your comprehension and a final examination in the Assignment for your contact hours.

**Topic 4 – Scope/Background:** The Industrial Pretreatment program requires the permit writer to properly evaluate and verify the completeness and accuracy of the reporting/permitting/sampling data because it is used as a basis for permitting decisions. 55 minutes

Data Collection

Accuracy

Information Review

Facility Inspection

Public Access

## Topic 5 – Permitting Considerations

**Topic 5 - Section Focus:** You will learn the basics of the pretreatment program, POTW rules, industrial/commercial classifications and inspection procedures. At the end of this section, you the student will be able to understand and describe Clean Water Act's rule concerning pretreatment and the rationale for pretreatment. There is a post quiz at the end of this section to review your comprehension and a final examination in the Assignment for your contact hours.

**Topic 5 – Scope/Background:** The Industrial Pretreatment program is a federally mandated program under the Clean Water Act, which **controls the discharges of commercial and industrial facilities**. The purpose of the pretreatment program is to block the introduction of pollutants, which can cause damage to equipment and interference with the wastewater treatment process, into the wastewater collection and transmission system. The program is important in preventing harm to workers, the public and the environment. 130 minutes

Contents of a Permit	List of Regulated Users
Structure and Wording	Compliance Oversight Summary
Permitting Errors	Non-Compliance Summary
Cover Page	Regulatory Letter Examples
Program Evaluation	Manhole Entry Permit
Permit Cover Page Example	Permit Reclassification Letter
Update Example	High Strength Discharge Permit

## Topic 6 – Effluent Limitations

**Topic 6 - Section Focus:** You will learn the basics of CWA/POTW/pretreatment program's effluent limitations, priority pollutants and Local Limit sampling. At the end of this section, you the student will be able to understand and describe Clean Water Act's rule concerning effluent limitations and prohibited discharges. The student will be able to select which pollutants to specifically regulate and how to establish permit effluent limits. There is a post quiz at the end of this section to review your comprehension and a final examination in the Assignment for your contact hours.

**Topic 6 – Scope/Background:** The purpose of the pretreatment program is to block the introduction of pollutants, which can cause damage to equipment and interference with the wastewater treatment process, into the wastewater collection and transmission system. The permit writer must decide which of the pollutants require regulation. The permit must contain effluent limits that are based on the following:

- Categorical Pretreatment Standards [40 CFR Parts 405–471]
- National prohibited discharges (general and specific) [40 CFR 403.5(a) and (b)]
- Local limits [40 CFR 403.5(c) and (d)] 160 minutes

Selecting Pollutants	Best Management Practices
Categorical Pretreatment Standards	Applying Management Practices
Production Based Categorical Standards	Local Limits to Categorical Standards
Mass Limits for Concentration	Concentration or Mass Based Limits
National Prohibited Discharges	Zero Discharge Requirements
Prohibited Discharges in Permit	Tiered Permits
Local Limits	

## Topic 7 – Monitoring and Reporting Requirements

**Topic 7 - Section Focus:** You will learn the basics of industrial/commercial POTW monitoring and reporting. At the end of this section, you the student will be able to understand and describe Clean Water Act's rule concerning pretreatment requirements of monitoring and reporting of various industrial users and the importance of proper documentation. There is a post quiz at the end of this section to review your comprehension and a final examination in the Assignment for your contact hours.

**Topic 7 – Scope/Background:** The Industrial Pretreatment program requires the permit writer to establish monitoring and reporting requirements. The Control Authority should consider several factors in determining the specific requirements to be imposed. Basic factors that affect sampling location, sampling method, sampling frequency, and reporting frequency are as follows:

- Applicability of categorical Pretreatment Standards
- Effluent and process variability
- Flow or pollutant loading or both
- Type of pollutant 110 minutes

Special Monitoring

Sample Type

Composite Sample

Monitoring Frequencies

Analytical Methods

Reporting Requirements

Periodic Compliance Report

Report Submission

Report Signature

## Topic 8 – Pretreatment and Wastewater Sampling Section

**Topic 8 - Section Focus:** You will learn the basics of the pretreatment program's wastewater sampling, chain-of-custody and related procedures. At the end of this section, you the student will be able to understand and describe Clean Water Act's rule concerning pretreatment/local limit/special sampling requirements. Adherence to proper sample collection and handling protocols, 40 CFR Part 136 approved analytical methodologies, and record-keeping requirements can be verified through review of field measurement records, chain of custodies, and lab reports. There is a post quiz at the end of this section to review your comprehension and a final examination in the Assignment for your contact hours.

**Topic 8 – Scope/Background:** To ensure defensibility of sampling data, Control Authorities should develop and implement standard operating procedures and policies detailing sample collection and handling protocols in accordance with 40 CFR Part 136. Field measurement records may require information regarding sample location, condition of and programmed settings for sampling equipment, wastewater meter readings, and information for such parameters as pH and temperature which require analysis in the field. 180 minutes

Sampling Frequencies

Sampling Introduction

Types of Samples

Flow Proportional Composites

Pre-Sampling Procedures

Proper Sample Handling

Sampling Equipment Maintenance

Inorganic Non-Metals Methods

Metal Methods

Organic Methods

Plant Sampling

Bio-Solids

Sample Bottle Cleaning

Industrial User Example

Sample Preservation

QA/QC Field Procedures

Field Blank Procedures

Sampling Techniques

Volatile Organics

Pesticide Sampling

Heavy Metals

Cyanide

TPH

Virus Sampling

pH Section

pH Testing

pH Definition

pH Calculations  
Strong Acids and Bases

Alkalinity  
Dissolved Oxygen

## Topic 9 – Stand and Special Conditions

**Topic 9 - Section Focus:** You will learn the basics of the pretreatment program's permit conditions. At the end of this section, you the student will be able to understand and describe standard and special permit requirements. Standard and special conditions outline the general duties and responsibilities of each Industrial User. The order, language, and format of the standard conditions in permits are a matter of the Control Authority's discretion. The permit writer will understand the necessity of utilizing use clear and specific language. There is a post quiz at the end of this section to review your comprehension and a final examination in the Assignment for your contact hours.

**Topic 9 – Scope/Background:** Depending on the amount of detail provided in the Control Authority's sewer use ordinance, standard conditions for Industrial User permits may be taken from the Control Authority's sewer use ordinance and incorporated verbatim into the control mechanisms. The Control Authority can also condense or expand provisions from its sewer use ordinance and use them as standard conditions as long as the conditions in the control mechanism are consistent with the provisions in the sewer use ordinance. 90 minutes

User's Permit  
Excessive Discharges  
Special Conditions

Monitoring Requirements  
Permit Decisions  
Permit Records

## Topic 10 – Enforcement

**Topic 10 - Section Focus:** You will learn the basics of the pretreatment program industrial/commercial inspection, compliance and enforcement procedures along with proper documentation. At the end of this section, you the student will be able to understand and describe inspection and compliance procedures and proper documentation. There is a post quiz at the end of this section to review your comprehension and a final examination in the Assignment for your contact hours.

**Topic 10 – Scope/Background:** To evaluate IU compliance, Control Authorities must first identify applicable requirements for each IU. In general, IU reports and POTW monitoring activities are the basis for POTW evaluation of IU compliance. Discharge permit limit exceedances, discrepancies, deficiencies, and lateness are all violations that must be resolved. 110 minutes

IU Compliance  
ERG  
Administrative Tools  
Enforcement Response Plan  
Data Management  
Substantial Modifications  
Annual Publication  
Total Toxic Organics  
BMRs  
Periodic Compliance Reports

Discharge of Hazardous Wastes  
Self-Monitoring Requirements  
IU Reporting Requirements  
Notice of Violation Letter Example  
Show Cause Letter Example  
Notice of Violation – Permit Conditions Example  
Permit Appeals Process Letter Example  
Zero Discharge Example



## Topic 11 – POTW Hauled and Hazardous Wastes

**Topic 11 - Section Focus:** You will learn the basics of the pretreatment program POTW biosolid and hazardous waste disposal. At the end of this section, you the student will be able to understand and describe Clean Water Act's rule concerning proper biosolids and hazardous waste disposal. There is a post quiz at the end of this section to review your comprehension and a final examination in the Assignment for your contact hours.

**Topic 11 – Scope/Background:** Biosolids are treated sewage sludge and regulated by 40 CFR Part 503. The general pretreatment regulations, 40 CFR Part 403 establish standards and mechanisms for responsible entities to control pollutants that might pass through or interfere with publicly owned treatment works (POTW) treatment processes or contaminate sewage sludge. Land-applied biosolids must meet strict regulations and quality standards. 80 minutes

Hauled Waste Concerns

Hauled Wastes

Domestic Septage

Waste Control Programs

Resource Conservation and Recovery Act

Solid Waste

Biosolids

## Topic 12 – Confined Space Section

**Topic 12 - Section Focus:** You will learn the basics of entering a confined space and understand the dangers of working in a permit required confined space. At the end of this section, you the student will be able to understand and describe flammable atmospheres. Differentiate between toxic, irritant, and asphyxiating atmospheres. Describe preventive measures in terms of hazards. There is a post quiz at the end of this section to review your comprehension and a final examination in the Assignment for your contact hours.

**Topic 12 – Scope/Background:** Many pretreatment/POTW related workplaces (manholes, vaults, flumes) contain spaces that are considered “confined” because their configurations hinder the activities of any employees who must enter, work in, and exit them. For example, employees who work in vaults for sampling generally must squeeze in and out through narrow openings and perform their tasks while cramped or contorted. OSHA uses the term “confined space” to describe such spaces. 210 minutes

Entry Program Introduction

General Confined Space Safety Rules

Confined Space Terms

Contractor Entry

Confined Space Hazards

Required Confined Space Training

Unusual Conditions

Employer Responsibilities

Permit Required Confined Spaces

Entrant Log

Appendix A

Entry Procedures

Confined Space Entry Permit

Other Hazards

Confined Space Duties

Toxic Atmospheres

Entry Attendant Duties

Atmospheric Testing

Entry Procedures

Irritant Atmospheres

Charge of Entry

Confined Space Safety Equipment Policy

### Final Examination for Credit

Opportunity to pass the final comprehensive examination is limited to three attempts per course enrollment.

### Specific Course Goals and Timed Outcomes (Beta Testing)

Forty students were selected and given a task assignment survey in which to track their times on the above learning objectives (course content) and utilized a multiple choice answer sheet to complete their final assignment. All students were given 30 days to complete this assignment and survey. Beta testing performed March 2018, Rusty Randall, Proctor. (MACI)

Twenty seven students successfully completed this assignment out of forty students. The students were tested and the average time necessary to complete each task was recorded in the objectives and timed outcome section. In the above timed outcome section area, the tasks were measured using times spent on each specific objective goal and final assignment grading of 70% and higher.

### Beta Testing Group Statistics

Forty students were selected for this assignment. All of the students held wastewater treatment operator certification / pretreatment /stormwater positions. None of the test group received credit for their assignment. Three students failed the final examination. Ten students did not complete the reading assignment. The average times was based upon the outcome of twenty-seven successful students. The average course completion time was 27.2 hours, with the slowest time of 43 hours.

### Beta Testing Survey Results

1. The difficulty of your course.

Very Easy    0    1    2    3    4    5    Very Difficult

2. Please rate the difficulty of the testing process.

Very Easy    0    1    2    3    4    5    Very Difficult

3. Please rate the subject matter on the exam to your actual field or work.

Very Similar    0    1    2    3    4    5    Very Different

### Accreditation Formula for Figuring CEU Credit\*\*

The results of beta testing were used in conjunction with a formula to determine average student time for accreditation purposes for intended audiences. This formula may not work for unintended audiences.

1 page of text = 2 minutes of student time.

1 word practice problem = 1 minute of student time.

1 word quiz/exam question = 1 minute of student time.

### Course Page Count Total

500 page of text (Not including assignment) = 1000 pages equals 16.6 hours.

400 exam questions = 6.6 hours of student time

240 practice question = 4 hours of student time

**Total of 27 Hours. We are asking for 24 hours of credit.**

\*\*CEU was awarded based on guidelines established by the International Association of Continuing Education and Training (IACET).

### **Assessment Implications**

Core tasks have been statistically analyzed then reviewed and edited by the Advisory Committee, SME Experts. These tasks now form a distinct definition of the course and assessment content. The emphasis for most of the levels of operation would be found in the duty/functions discussion bellow. To recap, bodies of knowledge and concepts that support the understanding and valid performance of the following duty/functions should be taught first. Based on the job-task survey data and beta-testing, the most useful parts of the course are beneficial for the following categories:

### **Suggested/Recommended for**

Pretreatment Operators  
Wastewater Treatment Operators Level 1 to 4  
Water/Wastewater Samplers  
Clean Water Act Rules and Regulation Enforcers  
Collection Inspector or Advanced Collection Operators

### **Timed Averages**

Student have reported the following time burden for successful completion of this distance learning course to be estimated to average of 27 hours per response per completed assignment or final examination. The timed burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing of the final assignment and passing the assignment with a score of 70% or better.

### **Task Analysis and Training Needs Assessment Process Information Gathering**

Task Analysis and Training Needs Assessments have been conducted to determine or set Needs-To-Know for the basis of TLC's continuing education courses. The following is a listing of some of those who have conducted extensive valid studies from which TLC has based the continuing education program upon: the Environmental Protection Agency (EPA), the Arizona Department of Environmental Quality (ADEQ), the Texas Commission of Environmental Quality (TCEQ), Pennsylvania Depart of Environmental Protection (PDEP) and the Association of Boards of Certification (ABC).

TLC has primary used Training Provider Manual for the Pennsylvania Water and Wastewater System Operator Training Program for course goal setting and learning objectives for all three training formats; conventional classroom, distance paper based and web based training.

The titles or names of subjects (Learning Objectives) may be changed for readability purposes. Some of the terms used in this document may be part of a copyrighted adult learning assessment process and in these cases, we utilize generic terminology. The needs assessment/survey maintains our training and education materials criteria. Assessments and changes are performed based on changes in technology, evaluations of the students, regulatory changes and editorial corrections. Most of this information is considered intellectual property and may not be owned by TLC but by third –parties.

### **ADDIE**

TLC utilizes a five-phase instructional design model consisting of Analysis, Design, Development, Implementation, and Evaluation for our continuing education courses. Each course design step has an outcome that feeds into the next step in the sequence. The five phases of ADDIE are as follows:

## **ANALYSIS**

During the Training Needs Assessment Process Information Gathering Analysis phase, the course designer(s) (see Subject Matter Experts and Contributing Editors) identifies the learning need, the goals and objectives, the student's needs, existing knowledge, Course Statement of Need, and any other relevant characteristics (State or Federal Need-to-Know) and to ensure that students are learning what is relevant for their job.

## **DESIGN**

This is the systematic process of specifying learning objectives from the Training Needs with a focus on Bloom's Taxonomy. A detailed storyboard following the Needs Assessment/Survey and/or Course Statement of Need will determine the course content.

## **DEVELOPMENT**

The actual creation (production) of the training content will begin based upon the Design phase using Bloom's Taxonomy. At this time, a decision is made to proceed or table the course.

## **IMPLEMENTATION**

During implementation, the Alpha testing plan is put into action and a procedure for course and/or assessment revision is implemented. These course materials and assessments are delivered or distributed to the student group. After delivery, the effectiveness of the training materials is evaluated in Beta testing phase. All of our courses have extensive Alpha and Beta testing to ensure job relevancy, correct information and course learning objectives are met.

## **EVALUATION**

This phase consists of (1) formative and (2) summative evaluation from Alpha and Beta testing. Formative evaluation is present in each stage of the ADDIE process. Summative evaluation consists of tests designed for criterion-related referenced items and providing opportunities for feedback from the students and proctor. Administrative and instructional staff will collect all student concerns (verbal, written and surveys) and distribute these to TLC Administrative personnel for evaluation and course corrections. Course and/or Assessment revisions are made as necessary.

### **Precept-Based (Micro-Learning) Training Course**

TLC's training courses are based upon a form of induction training, made of topical and technical precepts that are discovered in the Needs Assessment/Survey and/or Training Needs Assessment Process Information Gathering. The training topics or learning objectives are made up of "micro-content" or "precepts"— or small chunks of information that can be easily digested. These bite-size pieces of technical information are considered to be one of the most effective ways of teaching students new or important information (regulatory or technical) because it helps the mind retain knowledge easier.

Micro-learning or precept-based training doesn't rely on the student to process a large amount of information before breaking it down. Our method includes short modules with clearly defined learning goals for each section. This method allows a student to hone in on a particular skill, then given the opportunity to exhibit their knowledge in the final assessment (assignment).

### **Course Training/Assessment Needs Methodology**

Technical Learning College identified training/assessment needs by placing identifying them in two categories; internal and external.

**Internal Methods include:**

- ✓ Observation
- ✓ Interviews
- ✓ Instruments: Perception instruments and Knowledge based assessments
- ✓ Student records and reports
- ✓ Group problem analysis (Classroom or Seminars)
- ✓ Performance or Survey appraisals

**External Methods include:**

- ✓ Outside consultants (Completion)
- ✓ Government Certification Reviews (Training Needs)
- ✓ Records and reports from other agencies

The needs assessment/survey maintains our training and education materials criteria. Assessments and course material changes are performed based on changes in technology, evaluations of the participants and regulatory changes. Materials are assessed yearly or as needed to insure course integrity.

**Final Examination for Credit**

Opportunity to pass the final comprehensive examination is limited to three attempts per course enrollment.

**Course Author  
Melissa Durbin**

This course was co-authored by Melissa Durbin; she has over 25 years of wastewater treatment teaching experience as a college instructor. Melissa has written the several nationally accepted wastewater treatment manuals since 2001. This course has been accepted in most States for continuing education credit. Melissa has taught approximately 10,000 students about water/wastewater treatment, disinfection and related classes. She will be available to answer questions relating this course.

**Extensive Academic Research**

Technical Learning College's (TLC's) continuing education course material development was based upon several factors; field experience working in the water quality field, extensive academic research (teaching in the community college system), advice from subject matter experts (State officials and industry leaders), data analysis, task analysis and training needs assessment process information gathered from other states.

Both Melissa and Jeff Durbin are the two primary Instructors, Subject Mater Experts and Technical Writers have trained and/or certified more than ten thousand students. These two Instructors teach on a daily basis in a classroom setting throughout Arizona and on-line to students nationwide. See below for more information.

**Advice from Subject Matter Experts**

Both Melissa and Jeff Durbin are professional trainers and have been educated in current trends in professional education and continuing education needs.

**Primary Course Designers Melissa and Jeff Durbin****Melissa Durbin**

This course was co-designed by Melissa Durbin; she has over 25 years of teaching water and wastewater treatment experience as a college instructor. Melissa has written the several nationally accepted water and wastewater treatment manuals. Melissa has taught approximately 10,000 students about water and wastewater treatment and related classes. She will be available to answer questions relating this course.

**Jeff Durbin**

This course was co-designed by Jeff Durbin, over 10 years of water and wastewater treatment experience as a backflow inspector for the City of Phoenix and 20 years of water and wastewater treatment experience. Jeff has taught approximately 10,000 students about water and wastewater treatment primarily in water distribution, and pollution control (water quality) related classes. Jeff will also be able to answer any question pertaining to this course.

**Course Compiler**

Peter Easterberg, Detail-oriented technical writer/technical editor/desktop publisher/copy editor. 20 years' experience editing and writing feasibility and trade-off studies, test procedures, specifications, user manuals, company policies, HR forms, and ISO-9000 documents. Exceptional grammatical/written communication skills. "Go-to" person for Microsoft Word, Outlook, and general computer questions. Internet Webmaster Certificate (including HTML)

### **Contributing Editors**

**James L. Six** Received a Bachelor of Science Degree in Civil Engineering from the University of Akron in June of 1976, Registered Professional Engineer in the State of Ohio, Number 45031 (Retired), Class IV Water Supply Operator issued by Ohio EPA, Number WS4-1012914-08, Class II Wastewater Collection System Operator issued by Ohio EPA, Number WC2-1012914-94

**Joseph Camerata** has a BS in Management with honors (magna cum laude). He retired as a Chemist in 2006 having worked in the field of chemical, environmental, and industrial hygiene sampling and analysis for 40 years. He has been a professional presenter at an EPA analytical conference at the Biosphere in Arizona and a presenter at an AWWA conference in Mesa, Arizona. He also taught safety classes at the Honeywell and City of Phoenix, and is a motivational/inspirational speaker nationally and internationally.

**James Bevan**, Water Quality Inspector S.M.E. Twenty years of experience in the environmental field dealing with all aspects of water regulations on the federal, state, and local levels. Experience in the water/wastewater industry includes operation of a wastewater facility, industrial pretreatment program compliance sampling, cross-connection control program management, storm water management, industrial and commercial facility inspections, writing inspection reports for industry, and technical reports per EPA permit requirements. Teacher and Proctor in Charge for Backflow Certification Testing at the ASETT Center in Tucson for the past 15 years and I possess an Arizona Community College, Special Teaching Certificate in Environmental Studies. Extensive knowledge and experience in college course and assignment/assessment writing.

**Dr. Pete Greer** S.M.E., Retired biology instructor, chemistry and biological review.

**Jack White**, Environmental, Health, Safety expert, City of Phoenix. Art Credits.

### **Ongoing Course Evaluation**

Administrative and instructional staff will collect all student concerns (verbal, written and surveys) and distribute these to the Course Editor or Copy-editors for evaluation and course corrections. Administrative and instructional staff will collect all student concerns (verbal, written and surveys) and distribute these to TLC Administrative personnel for evaluation and course corrections. Course and/or Assessment revisions are made as necessary.

### **Editor's Discretion**

The Course Editor may change the course assessment (assignment), course text, objective, artwork and topical order as necessary for security, corrective, printing, readability or typesetting purposes. The assessment may be rotated for security purposes and the course material may be updated to reflect any regulatory updates and/or corrections. The overall course objective or topic guide may be in a different order than the course manual for the reason of typesetting, adult learning principles and copy-editing purposes. Course materials, charts and artwork amendments, adjustments, modifications may be performed to reflect regulatory/safety text/artwork updates, Bloom's taxonomy, adult learning principle changes, error adjustments and comprehension. These changes generally do not reflect major course material changes, but are minor in nature.

## **Course Procedures for Registration and Support**

All of Technical Learning College's (TLC) correspondence courses have complete registration and support services offered. Delivery of services will include, e-mail, web site, telephone, fax and mail support. TLC will attempt immediate and prompt service. When students register for a distance or correspondence course, they will be assigned a start date and an ending date.

It is the student's responsibility to note dates for assignments and keep up with the course work. If a student falls behind, he/she must contact TLC and request an ending date extension in order to complete the course. It is the prerogative of TLC to decide whether to grant the request. All students will be tracked by their or a unique number.

## **Course Procedures for Registration and Support**

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When a student registers for a correspondence course, he/she is assigned a start date and an end date. It is the student's responsibility to note dates for assignments and keep up with the course work. If a student falls behind, he/she must contact TLC and request an end date extension in order to complete the course. It is the prerogative of TLC to decide whether to grant the request. All students will be tracked by a unique computer generated number assigned to the student. Some students will be tracked and reported by their operator ID for Pennsylvania, Texas and New York.

## **Disclaimer and Security Notice**

The student shall understand that it their responsibility to ensure that this CEU course is either approved or accepted in my State for CEU credit. The student shall understand and follow State laws and rules concerning distance learning courses and understand these rules change on a frequent basis and will not hold Technical Learning College responsible for any changes.

The student shall understand that this type of study program deals with dangerous conditions and will not hold Technical Learning College, Technical Learning Consultants, Inc. (TLC) liable for any errors or omissions or advice contained in this CEU education training course or for any violation or injury caused by this CEU education training course material. The student shall contact TLC if they need help or assistance and double-check to ensure my registration page and assignment has been received and graded.

## **Student's Identity, Attendance, and Participation Verification**

A proctoring report and/or computer-tracking program validates proper identity, attendance and participation. The student shall submit a driver's license for signature verification and track their time worked on the assignment. The student shall also sign an affidavit verifying they have not cheated and worked alone on the assignment. We follow up with telephone confirmation and/or quiz review assessment. All student attendance is tracked on TLC's student attendance database.

## **TLC's Teaching Techniques and Assessment Tools**

Our training courses are based upon a form of induction training, made of topical and technical precepts. The training topics are made up of "micro-content" or "precepts"— or small chunks of information that can be easily digested. These bite-size pieces of technical information are considered to be one of the most effective ways of teaching people new information because it helps the mind retain knowledge easier. Micro-learning or precept-based training doesn't rely



on the student to process a large amount of information before breaking it down. Our method includes short modules with clearly defined learning goals for each section with a post quiz and a final assessment (quiz). This method of pre-quiz allows a student to hone in on a particular skill, then given the opportunity to exhibit their knowledge in the final assessment.

### **TLC's Educational Learning Objective Topics**

The general course descriptions or topic titles may be different from the detailed description of the course's outline or learning objectives. These terms may be an alternative expression or a substitute but essentially having the same meaning. This is done for reading or for editing purposes. The detailed alpha and beta-testing data is not available in this document and is proprietary information belonging to a third party. The CEU course covers several educational topics/functions/purposes/objectives of compliance. The general course description of topics may be different from the detailed description. These differences are cosmetic only. The topics listed are to assist in determining which educational objective or goal that is covered for a specific educational topic area.

### **TLC Contact Information**

All instructors and administrative staff are obligated to respond within 1 day by email, snail mail or telephone providing proper guidance to successfully complete the assignment. Email and telephone inquiries are handled quickly, generally within 2 hours of the call. We encourage students to complete their work with less frustration and fewer delays by calling or e-mailing us for any concern. We attempt to provide direct interaction similar to conventional classroom training.

### **Security and Integrity**

All students are required to do their own work. All lesson sheets and final exams are not returned to the student to discourage sharing of answers. Any fraud or deceit and the student will forfeit all fees and the appropriate agency will be notified. A random test generator will be implemented to protect the integrity of the assignment.

### **Student Information Personal Data Security Procedures**

All information regarding the student is strict and privileged only. This information is held in secure databases and is not sold or provided to any one unless the student requests a copy or a State agency does an audit. Even during audits, we restrict confidential information unless the Agency can provide a legitimate excuse. Some of this security information and data is priority and details are not provided. Students are not provided with any passwords at this time.

### **Certificate of Completion**

TLC will offer the student either pass/fail or a standard letter grading assignment. If TLC is not notified, the student will only receive a pass/fail notice. In order to pass your final assignment, you are required to obtain a minimum score of 70% on your assignment. The certificate of completion will have all text in capital letters and there is a water mark of the Technical Learning College in three colors along with anti-counterfeiting security measures on the edge of the certificate. An electronic copy is assigned to the student's electronic record with issue date.

### **Student Assistance**

The student shall contact TLC if they need help or assistance and double-check to ensure my registration page and assignment has been received and graded.

### **Instructions for Written Assignments**

The Pretreatment 202 training CEU course uses multiple choice and true/false questions. Answers may be written on the answer key or typed out on a separate answer sheet. TLC prefers that students type out and e-mail their answer sheets to [info@tlch2o.com](mailto:info@tlch2o.com), but they may be faxed to (928) 468-0675.

### **Final Examination for Credit**

Opportunity to pass the final comprehensive examination is limited to three attempts per course enrollment.

### **Required Texts**

This course comes complete and does not require any other materials.

### **Environmental Terms, Abbreviations, and Acronyms**

TLC provides a glossary in the rear of this manual that defines, in non-technical language, commonly used environmental terms appearing in publications and materials, as well as abbreviations and acronyms used throughout the EPA and other governmental agencies.

### **Recordkeeping and Reporting Practices**

TLC keeps all student records for a minimum of five years. It is the student's responsibility to give the completion certificate and/or paperwork to the appropriate government agencies. If necessary, we will electronically submit the required information to New York, Colorado, Texas, Indiana, Pennsylvania and any other required state for your certification renewals.

### **TLC Record Storage**

TLC's training records include the following elements:

1. Individual course training (assessment) and registration page (Customer Order Record) is recorded in Excel format and the hard copies are scanned and stored in a computer database for 5 years and include the following:
  - a. the instructor(s) who taught each session on that date the of the training session or grading was offered (in comments section registration page) as well as which instructor was considered to be the lead instructor(s) and by the Director.
  - b. the name of the instructor(s) and facilitator(s) who proctored and/or graded the examination for each training session if applicable (in comments section registration page);
  - c. the attendance sign-in sheet(s) (registration page) for each training course or session;
  - d. all graded and dated validated examination answer (Assessment) sheets for each examination attempt including an explanation (written in comments and/or Excel list) for any retests as well as a narrative explaining any assistance provided to the attendee before the re-test; and
  - e. session evaluation(survey)forms (in comments section registration page and or Excel list).

### **Grading Criteria**

TLC offers students the option of either pass/fail or assignment of a standard letter grade. If a standard letter grade is not requested, a pass/fail notice will be issued. Final course grades are based on the total number of possible points. The grading scale is administered equally to all students in the course. Do not expect to receive a grade higher than that merited by your total points. No point adjustments will be made for class participation or other subjective factors. For security purposes, please fax or e-mail a copy of your driver's license and always call us to confirm we've received your assignment and to confirm your identity.

### **Final Assignment**

The final examination assignment is determined by the examination administrator or the instructor and there are generally three versions that are readily available. There are also three levels of the examination from average, (5 Answers) Difficult (5 +All of the above) and very difficult (Six answers and All of the above). The student is provided the average rated examination unless there is a condition or concern that requires a more difficult examination. Example, two or more students at the same address or any suspicion of cheating or potential fraud. We try to ensure the security and learning experience. Assignments/answer keys are only accessible to instructors and administrative staff that have a need to know clearance.

### **Failure**

If the student fails the examination, they are provided with two more chances to successfully pass the exam with a score of 70% or better. The student may receive a different and randomly generated exam. Upon failure of an exam, the student can submit their concerns in writing or submit a survey form and has the option to receive instructor assistance that would be equivalent to conventional classroom assistance in discovering the areas that are deficient. The instructor has the option in describing the assistance method or procedure depending upon the student's deficiencies.

### **Grading Criteria**

TLC will offer the student either pass/fail or a standard letter grading assignment.

- A 900 – 1000 points
- B 800 – 899 points
- C 700 – 799 points
- D 600 – 699 points
- F <600 points

In order to successfully pass this course, you will need to have 70% on the final exam. The entire assignment is available on TLC's Website in a Word document format for your convenience.

### **Forfeiture of Certificate (Cheating)**

If a student is found to have cheated on an examination, the penalty may include--but is not limited to--expulsion; foreclosure from future classes for a specified period; forfeiture of certificate for course/courses enrolled in at TLC; or all of the above in accordance with TLC's Student Manual. A letter notifying the student's sponsoring organization (State Agency) of the individual's misconduct will be sent by the appropriate official at TLC. No refund will be given for paid courses. An investigation of all other students that have taken the same assignment within 60-day period of the discovery will be re-examined for fraud or cheating. TLC reserves the right to revoke any published certificates and/or grades if cheating has been discovered for any reason and at any time. Students shall sign affidavit agreeing with all security measures. The student shall submit a driver's license for signature verification and track their time worked on the assignment. The student shall sign an affidavit verifying they have not cheated and worked alone on the assignment.

### **Note to students: Keep a copy of everything that you submit.**

If your work is lost, you can submit your copy for grading. If you do not receive your certificate of completion or quiz results within two or three weeks after submitting it, please contact us immediately. We expect every student to produce his/her original and independent work.

Any student whose work indicates a violation of the Academic Misconduct Policy (cheating, plagiarism) can expect penalties as specified in the Student Handbook, which is available through

Student Services; contact them at (928) 468-0665. A student who registers for a distance learning course is assigned a "start date" and an "end date." It is the student's responsibility to note due dates for assignments and to keep up with the course work. If a student falls behind, she/he must contact the instructor and request an extension of her/his *end date* in order to complete the course. It is the prerogative of the instructor to decide whether or not to grant the request.

Your assignments are due on time. Any assignment or mailed-in examination that is one to five days late will be marked down one letter grade. Any assignment or mailed-in examination that is turned in *later* than five days will not be accepted and will be recorded in my grade book as "non-participating" and you can be withdrawn from class. (See final grade options.)

### **Proctoring Instructions**

Students enrolled in Technical Learning College's CEU courses that require proctored testing and **who do not live in the physical service area** of the Technical Learning College Test Center must nominate and gain prior approval of a proctor who will monitor course tests. A new proctor nomination form is required for each term and for each class.

### **PROCTORS, If Necessary...**

A proctor is an individual who agrees to receive and administer a student's test(s) from Technical Learning College at the proctor's business email address. The test(s) will be ethically and professionally administered in a suitable testing environment (e.g., college/library or professional office). The proctor will return the test(s) to the Technical Learning College Test Center via fax immediately after administration, and the proctor will mail the exam within one (1) work day of administration to the Technical Learning College Test Center.

Proctors certify in writing to the Technical Learning College Test Center that the student completed the test according to all of the specific directions provided in the proctor guidelines letter. As the Proctor Nomination Form indicates, the student will identify the specific test(s) the proctor will monitor.

Any proctor the student nominates must be acting in the official capacity in one of the following positions:

- **College or University Personnel:** Dean, Department Chair, Student Records, Professional Staff Member of an adult/continuing education office or counseling center, Librarian, Professor, or any official testing center personnel if the tests are administered in the center.
- **Armed Forces Education Office Personnel**
- **Public or Private School Personnel:** Superintendent, Principal, Guidance Counselor, or Librarian.
- **Other:** Civil Service Examiner, Librarian for City/County, HR Professional, or Education/Training Coordinator.

**The following persons do not qualify as proctors:**

- **Co-workers, someone who reports to you or your immediate supervisor**
- **Friends**
- **Neighbors**
- **Relatives**

### **Nominating a Proctor**

Students are responsible for identifying, nominating, and making all of the arrangements for the proctoring of their course tests, including the payment of any fees for services and the return of test materials to Technical Learning College Test Center (cost of FAX or postage). The proctor must be able to receive the student's test(s) via email as attachments. The Technical Learning College Test Center does not accept Yahoo, AOL, G-mail, Hotmail, or etc. email addresses.

If the student is unable to find a suitable proctor, they must contact the Technical Learning College Test Center for assistance immediately via email.

### **Proctor Nomination Form**

Students will use the Proctor Nomination Form for nomination and approval of a proctor. The student will complete the top part of the form for each course s/he is taking, even if the same proctor is used for all tests. The student must click on the submit button for the data to be electronically transmitted to the Technical Learning College Test Center.

### **Disclaimer Notice**

It is ultimately the student's responsibility to ensure that this CEU course is either approved or accepted in my State for CEU credit. The student shall understand State laws and rules change on a frequent basis and believe this course is currently accepted in their State for CEU or contact hour credit, if it is not, the student shall will not hold Technical Learning College responsible. The student shall also understand that this type of study program deals with dangerous conditions and that the student shall will not hold Technical Learning College, Technical Learning Consultants, Inc. (TLC) liable for any errors or omissions or advice contained in this CEU education training course or for any violation or injury caused by this CEU education training course material. The student shall will call or contact TLC if help or assistance is needed and double-check to ensure the registration page and assignment has been received and graded.

### **Affidavit of Exam Completion**

The student shall affirm that they alone completed the entire text of the course. The student shall affirm that they completed the exam without assistance from any outside source. The student shall understand that it is their sole responsibility to file or maintain their certificate of completion as required by the state.

### **Refund Policy**

We will beat any other training competitor's price for the same CEU material or classroom training. Student satisfaction is guaranteed. We will refund course fees if the course is not accepted for credit by the State. Otherwise, any other problem will be given an exchange credit towards an acceptable or approved course for the State. Once we are notified of the refund or exchange, we will generally issue a refund in 30 days of the problem and exchange within the same day.

### **Continuing Education Units**

You will have 90 days from receipt of this manual to complete it in order to receive your Continuing Education Units (**CEUs**) or Professional Development Hours (**PDHs**). A score of 70% or better is necessary to pass this course. If you should need any assistance, please visit our Assistance Page on the website. Please e-mail all concerns and the final test to [info@tlch2o.com](mailto:info@tlch2o.com).

**Mission Statement**

Our only product is educational service. Our goal is to provide you with the best possible education service possible. TLC will attempt to make your learning experience an enjoyable opportunity.

**ADA Compliance**

TLC will make reasonable accommodations for persons with documented disabilities. Students should notify TLC and their instructors of any special needs. Course content may vary from this outline to meet the needs of these particular students.

**Note to Students**

**Keep a copy of everything that you submit!** If your work is lost, you can submit your copy for grading. If you do not receive your certificate of completion or other results within two to three weeks after submitting it, please contact your instructor.

**Educational Mission****The educational mission of TLC is:**

*To provide TLC students with comprehensive and ongoing training in the theory and skills needed for the environmental education field,*

*To provide TLC student's opportunities to apply and understand the theory and skills needed for operator certification,*

*To provide opportunities for TLC students to learn and practice environmental educational skills with members of the community for the purpose of sharing diverse perspectives and experience,*

*To provide a forum in which students can exchange experiences and ideas related to environmental education,*

*To provide a forum for the collection and dissemination of current information related to environmental education, and to maintain an environment that nurtures academic and personal growth.*

**When the Student finishes this course...****At the conclusion of this course:**

At the finish of this course, you (the student) should be able to explain and describe wastewater pretreatment permit, including inspection methods, purposes and rules. You will also learn generally accepted wastewater treatment sampling techniques and enforcement control methods. Upon completion of this course, the student will obtain 24 hours of continuing education relating to pretreatment permitting, inspection, and enforcement procedures.

**Student is required to submit the following information for assignment grading...**

1. 70 PERCENT ON FINAL ASSESSMENT
2. DRIVER'S LICENSE
3. SCHEDULE OF TIME WORKED ON ASSIGNMENT
4. AFFIDAVIT OF EXAM COMPLETION
5. PROCTOR CERTIFICATION
6. TELEPHONE CONFIRMATION

## **CUSTOMER SERVICE RESPONSE CARD**

NAME: \_\_\_\_\_

E-MAIL \_\_\_\_\_ PHONE \_\_\_\_\_

PLEASE COMPLETE THIS FORM BY CIRCLING THE NUMBER OF THE APPROPRIATE ANSWER IN THE AREA BELOW.

1. Please rate the difficulty of your course.  
Very Easy    0       1       2       3       4       5    Very Difficult
  
2. Please rate the difficulty of the testing process.  
                Very Easy    0       1       2       3       4       5    Very Difficult
  
3. Please rate the subject matter on the exam to your actual field or work.  
Very Similar   0       1       2       3       4       5    Very Different
  
4. How did you hear about this Course? \_\_\_\_\_
  
5. What would you do to improve the Course?  
  
\_\_\_\_\_

How about the price of the course?

Poor \_\_\_\_\_ Fair \_\_\_\_\_ Average \_\_\_\_\_ Good \_\_\_\_\_ Great \_\_\_\_\_

How was your customer service?

Poor \_\_\_\_\_ Fair \_\_\_\_\_ Average \_\_\_\_\_ Good \_\_\_\_\_ Great \_\_\_\_\_

Any other concerns or comments.

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